

of their aquaria in large numbers, but they could not keep them alive more than a day or two after the attachment had taken place.

The growing extent of the piscicultural operations of the Commission, as indicated by the Reports in Appendix E, is marvellous. Statistics of the distribution of shad-fry during 1882 are given in a paper by Chas. W. Smiley; the total number distributed was over 30 millions. The total number of carp distributed was 259,000, of Peneboscot salmon 1,716,000, of Schoodic salmon 1,482,000.

It would be extremely interesting to have some information as to the result of all this work, as to the effect produced on the supply of fish in the rivers, and on the productiveness of the fisheries. The Commissioner points out that it is of little use to put anadromous fish into rivers if the waters are obstructed by dams or made uninhabitable by pollution, and a new fish-way to remedy the former difficulty is described by Col. M. MacDonald in Appendix A. But all who are acquainted with the labours of the American Commission would be grateful if Mr. Chas. Smiley would apply his great power of handling statistics to exhibiting the economical results of the piscicultural work.

J. T. CUNNINGHAM

NOTES

THE statue of Darwin will be unveiled in the great hall of the Natural History Museum, Cromwell Road, on Tuesday, June 9, at 12 o'clock, when Prof. Huxley, President of the Royal Society, on behalf of the memorial committee, will formally transfer it to the care of the Masters of the Museum, who will be represented by His Royal Highness the Prince of Wales. Places will be reserved for the committee and subscribers to the memorial, but the greater part of the hall will be open to the public during the ceremony. The statue, which has been executed by Mr. Boehm, R.A., is of marble, and seated, rather larger than life-size; it is pronounced by those who have seen it to be an admirable likeness as well as a fine work of art.

IT is now twenty-one years since the *Geological Magazine* was first issued. During all that time Dr. H. Woodward, F.R.S., has been an editor, and for almost the whole of it the principal editor, on whom the main burden and chief responsibility of the work has fallen. It has been a work which has not only cost him much time and labour but also has been practically unremunerative. His friends among geologists accordingly purpose to celebrate the "majority" of the *Magazine* by presenting to him a testimonial in appreciation of his services to science. A meeting was held last week, at which an influential committee was formed, a list of which will shortly be circulated. The treasurer and secretary is Dr. Hinde, F.G.S.

WE greatly regret to record the death of the Rev. Thomas W. Webb, Vicar of Hardwick, near Hay, Brecon, well-known for his writings on astronomical subjects. We hope next week to refer to the work he has done in astronomy.

THE death is announced of Mr. Peter William Barlow, F.R.S., the well-known engineer.

A CONGRESS on hydrology and climatology will, it is stated, be held at Biarritz during October next. The French Government has brought the matter to the notice of foreign Governments, in order that the latter may take the necessary steps to be represented at the congress.

ON April 13 the Leander McCormick Observatory attached to the University of Virginia was opened by public ceremony. The buildings are situated on a hill called "Observatory Mountain," because in 1825 Thomas Jefferson erected a small observatory there, which gradually fell into decay. They consist of residences for the director and assistant, offices, a small

observatory for minor observations, and a large building for the dome. The observatory proper consists of a cylindrical building surmounted by a hemispherical dome forty-five feet in diameter, and a rectangular building used as a library and computing office. The walls are of brick, the circular portion being heavily buttressed, and bearing at the top a coping of Ohio stone. On this rests cast-iron rails, on which the dome revolves. The latter weighs 25,000 lbs., and is composed of a framework of steel covered with galvanised iron and lined with painted canvas, having three openings covered by shutters when not in use. It takes five seconds to open one of these, and a minute and a quarter to revolve the dome quite round. The telescope, which is mounted on a brick pier under the centre of the dome, is similar at the Washington Observatory. The clear aperture of the object-glass is twenty-six inches. Like so many other important scientific and educational institutions in the United States, this observatory is due to the generosity of a wealthy native of the State, Mr. Leander McCormick, from whom it takes its name. This gentleman presented both telescope and building to the University. The cost is stated to have been about 13,000*l.*, the telescope costing over 9000*l.* The directorship of the observatory, to which post Mr. Ormond Stone, director of the Cincinnati Observatory, has been elected, is endowed with a sum of 10,000*l.*, collected by public subscription; while Mr. W. H. Vanderbilt has given the University a further sum of 5000*l.* as an endowment to pay the salary of an assistant observer, the expenses of publication, &c. According to the founder's plan the observatory is not to be confined to purposes of the University alone, but for general scientific research, so that students from any part of the United States who desire to become professional astronomers may receive a thorough training there. In accordance with this plan the Professorship of Astronomy in the University is a wholly distinct post from that of Director of the Observatory. Prof. A. Hall, of the National Observatory at Washington, delivered the opening address, taking for his theme "The Instruments and Work of Astronomy."

FROM various publications which we have recently received from the Government of Hong Kong Dr. Doberck, the astronomer, appears to have lost no time in employing the new observatory. The last batch of observatory papers include observations on lunar transits across the meridian of Hong Kong, and on the height of Victoria Peak. As this eminence is the most important in the east (with the possible exception of Fujiyama) in one sense—the sense in which Richmond Hill is more interesting than Mount Everest—it may be added that the mean height of the peak is 1710·6 feet above the Observatory, or 1818 feet above the mean sea-level. There is also a report on five-day means of the principal meteorological elements for 1884, constructed according to the recommendations of the International Meteorological Congress, and a complete weather report for the same year. With four well-equipped observatories (Tokio, Shanghai, Hong Kong, and Manila) at work, the meteorology of the China Seas will soon cease from being the sealed book which it practically is at present.

LAST year was a tolerably productive one for the collectors of prehistoric remains in Switzerland. The water of the lakes was almost constantly below the highest level, which is the most favourable state of things for explorations around the lake-dwellings. The remains discovered belong mostly to the Bronze period, and the chief localities in which they were found were Lake Neuchâtel and the settlement of Wallishofen near Zürich, the latter of which is the only station of the Bronze period yet known in Eastern Switzerland. Among the most remarkable articles discovered at this settlement in 1884 were a splendidly preserved bronze sword, several dozens of bronze hatchets, bracelets, &c. Of the remains of the Stone period discovered in

the same year the most notable are those obtained at Robenhausen, including several pretty knife-handles made of yew, some excellent specimens of mechanical industry, such as thread, woven fabrics, fishing-nets, &c., and ears of barley and wheat, one being a specimen of the rare *Triticum turgidum*.

THE Zoological Society of Philadelphia, according to the Thirteenth Report of the Board of Directors, appears to have suffered during the past year, like many other institutions dependent on the public for support, from the general depression of trade. The financial balance shows a large reduction; nevertheless the Superintendent is able to report that the collection "presents to-day a greater and more typical variety of animal forms, in furtherance of the educational facilities which have been one of the chief aims of the Society, than at any previous period of the history of the garden." Among the principal additions during the year was a hippopotamus, the first obtained by the Society, a collection of European water-fowl, and a brush-turkey (*Tallegalla lathami*) of New South Wales. The specimen procured is a female, but it is hoped that a male may also be obtained, and that its extraordinary habit of hatching its eggs, by covering them with decomposing vegetable matter, may be shown in the garden.

It seems that the experiments of Dr. Ferran in inoculation for cholera have been stopped by the Spanish Government.

THE Sanitary Congress at Rome has been engaged during the past week mainly in discussing quarantine regulations.

WE have received Prof. Theodore Gill's "Account of the Progress in Zoology" for 1883, from the Smithsonian Report—a substantial pamphlet of over fifty pages. The special discoveries recorded have been selected either on account of the modifications which the forms considered force on the system, or because they are or have been deemed of high taxonomic importance, or the animals *per se* are of general interest; or, finally, they are of special interest to the American naturalist. The arrangement of the account is as follows:—General Zoology, Protozoans, Porifers, Coelenterates, Echinoderms, Worms, Arthropods, Molluscoids, Mollusks and Vertebrates. Each of these divisions is sub-divided according to the discoveries to be noted. At the end, a brief bibliography of noteworthy memoirs and works relating to different classes is appended. "The statement," Prof. Gill says, "is not intended for the advanced scientific student so much as for those who entertain a general interest in zoology, or in some of the better-known classes. It is compiled for the many rather than the few, and hence, perhaps, zoologists cultivating limited fields of research may find omissions, as well as notices of discoveries of minor importance."

ON May 20 a terrific storm raged in Paris; a stupendous peal of thunder was heard at 11 a.m. It seems the lightning struck the top of a high furnace at St. Ouen, near Montmartre. It is supposed that it was attracted by a mass of lead which was placed at this elevated situation for some purpose. The peculiarity is that no trace of the lead was afterwards found.

THE centennial celebration of Blanchard and Jeffries crossing the Channel in a balloon was celebrated on Sunday at Guine, Pas de Calais, where the two travellers landed.

SHOCKS of earthquake were felt at Wartberg and Kindberg, Austria, on May 20 towards 1.30 a.m. A sharp shock was felt at Smyrna at 7.15 p.m. on May 26.

PROF. DEWAR, F.R.S., will give a discourse on "Liquid Air and the Zero of Absolute Temperature" at the last Friday evening meeting of the season on June 5, at the Royal Institution.

A FEW years since the German Anthropological Society initiated an exhaustive investigation among German school children as to the proportion of those with dark and with fair complexions. This has been followed by similar investigations in Belgium, Switzerland, and Cislethian Austria, and these have supplied gaps in the German inquiry. The result was, according to *Die Natur*, laid before a recent meeting of the Berlin Academy of Sciences by Herr Virchow. In all, 10,077,635 children were examined as to the colour of the skin, hair, and eyes; 6,758,827 in Germany, 608,678 in Belgium, 505,609 in Switzerland, and 2,304,501 in Austria. The geographical boundaries were the Pregel and Dniester on the east to the Vosges on the west; the Baltic and German Ocean on the north, to the Adriatic and the Alps on the south. The following is the result:—Of pure blondes there were found in Germany 2,149,027; in Austria, 456,260; in Switzerland, 44,865; a total of 2,650,152, which, on a total of 9,468,557 (Belgium being omitted here) children examined, is rather more than one-fourth. The number of brunettes was: in Germany, 949,822; Austria, 534,091; in Belgium, 167,401; in Switzerland, 104,410; a total of 1,755,724, or about one-sixth of a total of 10,077,635. Hence more than half the school children of Central Europe are of the mixed type. The distribution of the pure types is very different. In Germany 31.80 per cent. is fair and 14.05 per cent. dark; in Austria the dark predominate, being 23.17 per cent., while the fair amount only to 19.79; in Switzerland the disparity is still greater, for the blondes are only 11.10 per cent., while the brunettes are 25.7; and in Belgium the blondes are 27.50 per cent. In Germany, therefore, the fair complexions predominate; but even here the proportions vary greatly, getting less and less as we go towards the south. In North Germany the proportion is between 43.35 and 33.5 per cent.; in Central Germany, about 25.29; and in the south, only 18.44; while, on the contrary, the proportion of dark children diminishes from 25 per cent. in South Germany, to 7 per cent. in the north. This appears to show the incorrectness of the theory of the French anthropologist that we must seek the real Germans in South Germany, and that North Germans are a dark race, a mixture of Finns and Slavs. The fair people are most numerous in Sleswick-Holstein, Oldenburg, Pomerania, Mecklenburg, Brunswick, and Hanover. That this should be the case in Mecklenburg—formerly a Slav district—is due, according to Herr Virchow, to a return-emigration of the Germans. Middle and Western Germany were especially the cradle of this emigration. Flemings, Dutch, and Frisians thus reached Holstein, Westphalia, Brunswick, Mecklenburg, and Pomerania. Saxony, Silesia, and Northern Bohemia were colonised through Eastern Franconia, Austria from Bavaria. The emigration of the German tribes took place at two different periods: the first, a movement from south to west, which ended with the foundation of the Frankish monarchy; the other a return to the last, which began with the Karolingian period, and is not yet concluded. The latter has led to a permanent colonisation, and to the formation of a new pure German people. The deep brown colour of the south and middle Germans, as well as of the Swiss, is traced by Herr Virchow to the Romans, Rhetians, and Illyrians, and especially to the remnants of the Celtic or pre-Celtic inhabitants, which have now become mixed with the Germans.

THE experiment of acclimatising the American Whitefish (*Coregonus albus*), lately tried by the National Fish Culture Association, has met with great success. Until now the attempts made were unsatisfactory, the utmost difficulty being experienced in finding suitable lakes for the reception of this valuable edible fish. The whitefish in question were incubated at South Kensington in March, and afterwards transferred to ponds at Delaford where they have thrived well ever since.

THE Naturalists' Societies in the East of Scotland have advanced an important stage. They have been established, have worked, and now have formed a union, the first report of which we have now before us. The union embraces the societies in the counties of Aberdeen, Fife, Forfar, Kincardine, Kinross, and Perth, and now consists of ten societies. The president, Dr. Buchanan White, of Perth, explained in his inaugural address the functions of the union as distinguished from those of the individual societies. Its main object of course is to carry on more effectually the work for which each of the societies that compose it has been formed, that work being the promotion of the study of natural science, especially of local natural science. Rivalry begotten of communication and connection, he argues, is as valuable to societies as to individuals; and while each society was isolated and worked independently in its own district, the sum total of the work done was necessarily imperfect because of want of uniformity in the matter of details; one subject has been thoroughly worked while another has been untouched, certain districts have been investigated, while others have been neglected, and the relations of one district to another have not been considered. Each society has toiled in a quarry in its own district, and has brought forth good stones, but they lie in an unsorted heap. The union undertakes the task of sorting, and utilising them. On this broad principle the union started, and the president laid down in the opening address the programme of its work for the immediate future. The first step was to ascertain the present state of knowledge of the zoology, botany, geology, and meteorology of the six counties included in the union. For this purpose a uniform method of treatment was adopted. Each reporter in his own special subject states how far the subject has been investigated, what parts of it especially require investigation, both as regards the district and the subject, what the probable richness of the district is, what important works, if any, have been published on the subject and district, and, finally, what work should be taken in hand at once. These statements make up the bulk of this first report, and there are in all nineteen, covering almost every department of natural history. The union, it thus appears, directs and organises the work of its affiliated societies, and prevents waste of power.

THE additions to the Zoological Society's Gardens during the past week include a White-bellied Beaver-Rat (*Hydromys leucogaster*), a White-bellied Sea Eagle (*Haliaeetus leucogaster*), two Stump-tailed Lizards (*Trachydosaurus rugosus*), a Great Cyclodus (*Cyclodus gigas*), a Diamond Snake (*Morelia spilotes*) from Australia, presented by Mr. E. P. Ramsay, C.M.Z.S.; an Australian Cassowary (*Casuarius australis*) from Australia, presented by Mr. T. H. Bowyer Bower; four Pucheran's Guinea Fowls (*Numida pucherani*) from East Africa, presented by Commander C. E. Gissing, R.N.; a Kestrel (*Tinnunculus alaudarius*), British, presented by Mr. C. A. Marriott; seven Striped Snakes (*Tropidonotus sirtalis*) from North America, presented by Mrs. A. H. Jamrach; a Common Viper (*Vipera berus*), from Epping Forest, presented by Mr. F. W. Elliott; two Lions (*Felis leo*) from Africa, two Pumas (*Felis concolor*) from South America, deposited; a Collared Fruit Bat (*Cynonycteris collaris*), four Upland Geese (*Bernicla magellanica*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN

DOUBLE-STAR MEASURES.—Nos. 2662-63 of the *Astronomische Nachrichten* contain the first division of a series of measures of double stars made by Herr R. Engelmann during the years 1882-84, preceded by a comparison of the differences between the observer's positions and distances of a number of stars, with those measured by Dembowsky and Asaph Hall, and other particulars bearing upon his own results. For several of the more interesting binaries, the following epochs are given:—

Castor ...	1882.88	...	234.3	...	5.56
♄ Cancri ...	1884.28	...	67.0	...	0.94
♌ Leonis ...	1884.23	...	91.4	...	0.66
♋ Ursæ Majoris	1884.41	...	249.6	...	1.92
♊ Virginis ...	1883.07	...	155.6	...	5.22
♊ Comæ Beren.	1882.93	...	192.1	...	0.56
♊ Bootis ...	1884.45	...	266.6	...	3.65

MINIMA OF ALGOL.—The following Greenwich mean times of geocentric minima of Algol have been obtained after applying a small correction to the period given by Prof. Schönfeld in his second catalogue of variable stars, so as to satisfy more nearly the observations of the late Prof. Schmidt in 1882 and 1883:—

	h. m.		h. m.		h. m.
July 25	13 10	Sept. 3	16 29	Sept. 29	11 46
28	9 58	6	13 17	Oct. 2	8 34
Aug. 14	14 49	9	10 6	19	13 26
17	11 38	12	6 54	22	10 15
20	8 26	26	14 57	25	7 3

CENTRAL SOLAR ECLIPSES IN NEW ZEALAND.—It is well known to those who are interested in astronomical matters that the track of the central line in the total eclipse of the sun on September 9 next is almost entirely over the Southern Ocean, and that the total phase will only be observable on land on the shores of Cook's Straits, New Zealand. It would appear that no central eclipse has traversed those islands during the present century; an examination of the various ephemerides points to the annular eclipse of December 29, 1796, as the last which was there central. An annular, though nearly total, eclipse will take place near the north extremity of the North Island on January 3, 1927, while, on May 30, 1965, when the sun is barely risen to an altitude of 5°, he will be totally eclipsed on the east coast of the North Island, near its north extremity for about 2m. 20s.

It is true that in an old catalogue of eclipses which has been transcribed into several of our popular astronomical treatises those of December 12, 1890, and September 29, 1894, are mentioned as being central in New Zealand, but an examination of these eclipses upon more recent data shows that neither will reach that country. In the eclipse of 1890 the central line ends in about longitude 143° W., latitude 36½° S., totality with the sun on the meridian taking place in longitude 129½° E., latitude 54° south, and the line thus running south of New Zealand. In the eclipse of 1894 it ends not far from longitude 163° E., latitude 56° S.

THE DAYLIGHT-OCCULTATION OF ALDEBARAN ON MAY 22, 1868.—Mr. H. Sadler reminds us that the occultation of Aldebaran to which reference was lately made in this column, as having been pointed out by Mr. Newall in 1868, when the star was only some eight degrees from the sun's place, was observed by Prof. Asaph Hall. The observation is to be found in the "Washington Astronomical and Meteorological Observations" for 1868, p. 327.

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, MAY 31 TO JUNE 6

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on May 31

Sun rises, 3h. 51m.; souths, 11h. 57m. 25.7s.; sets, 20h. 4m.; decl. on meridian, 21° 59' N.; Sidereal Time at Sunset, 12h. 42m.

Moon (at Last Quarter June 6, oh.) rises, 21h. 16m.*; souths, 1h. 43m.; sets, 6h. 10m.; decl. on meridian, 18° 21' S.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian
Mercury ...	3 7	10 22	17 38	13 43 N.
Venus ...	4 14	12 28	20 42	23 8 N.
Mars ...	2 50	10 21	17 52	16 31 N.
Jupiter ...	10 13	17 25	0 37*	13 10 N.
Saturn ...	4 54	13 3	21 12	22 24 N.

* Indicates that the rising is that of the preceding and the setting that of the following day.

Phenomena of Jupiter's Satellites

June	h. m.	June	h. m.
2 ...	22 50	II. tr. ing.	5 ... 22 43
4 ...	23 14	II. ecl. reap.	6 ... 22 22

The Phenomena of Jupiter's Satellites are such as are visible at Greenwich.